

AMENDMENTS TO THE CLAIMS

Please amend the present application as follows:

Claims

1. (Currently amended) A self-aligning holographic optical system, comprising:
a grating substrate supporting a holographically-formed diffraction grating;
and
an array mount for defining relative locations of point sources of light, the array
mount comprising:
recording points defining locations of point sources of recording light used to
illuminate the grating substrate during fabrication of the holographically-formed
diffraction grating; **and**
an input use point defined during fabrication of the holographically-formed
diffraction grating; and
an output use point defined during fabrication of the holographically-formed
diffraction grating; wherein the input and output use points define locations
of light apertures used in operation of the holographically-formed diffraction grating,
the use points having a defined positional relationship with the recording points, the
light apertures at the use points being capable of optical communication via the
holographically formed diffraction grating.
2. (Original) The system of claim 1, additionally comprising:
optical fibers located at the recording points.
3. (Original) The system of claim 1, additionally comprising:
pinholes located at the recording points.
4. (Original) The system of claim 1, wherein the apertures comprise the ends of
optical fibers.
5. (Original) The system of claim 1, wherein the apertures comprise an entrance
slit and at least one exit slit in the array mount.
6. (Original) The system of claim 1, wherein the use points comprise locations

that are the same as the recording points.

7. (Original) The system of claim 1, additionally comprising:
a thin metallic layer coating the surface of the holographically-formed diffraction grating.
8. (Currently amended) A method of making a self-aligning optical system, the method comprising:
determining a positional relationship between locations of use points and locations of recording points ~~with respect to when fabricating~~ a holographic diffraction grating;
providing an array mount having recording points and use points at the locations that satisfy the positional relationship;
~~using the array mount to fabricate~~ ~~fabricating~~ the holographic diffraction grating by illuminating a photosensitive layer with recording light emitted by point sources of light located at the recording points ~~in the array mount such that light apertures at the use points in the array mount optically communicate via the holographic diffraction grating.~~
9. (Original) The method of claim 8, further comprising:
determining the locations of the recording points from design parameters of the holographic diffraction grating.
10. (Original) The method of claim 8, further comprising:
locating optical fibers at the recording points for emitting the recording light.
11. (Original) The method of claim 8, further comprising:
locating pinholes at the recording points for emitting the recording light.
12. (Original) The method of claim 8, further comprising:
locating ends of optical fibers at the use points to optically communicate via the holographic diffraction grating.
13. (Original) The method of claim 8, wherein at least one of the use points has a

same location as at least one of the recording points.

14. (Currently amended) A method of aligning an optical system with a holographically-formed diffraction grating, comprising:

~~determining a positional relationship between relative locations of use points and recording points with respect to the holographically-formed diffraction grating;~~

providing an array mount with ~~the~~ use points and ~~the~~ recording points at locations satisfying ~~the~~ a positional relationship; and

aligning using the recording points in the array mount for aligning the array mount with the holographically-formed diffraction grating so that whereby the use points in the array mount are ~~self-aligned~~ automatically aligned with the ~~the~~ holographically-formed diffraction grating.

15. (Original) The method of claim 14, the method further comprising:

determining the locations of the recording points from design parameters of the holographic diffraction grating.

16. (Currently amended) The method of claim 14, ~~the aligning step comprising wherein the step of using the recording points in the array mount for aligning the array mount with the holographically-formed diffraction grating comprises:~~

producing an interference fringe pattern by illuminating the holographically-formed diffraction grating with recording light at the recording points; and positioning the recording points to produce an interference pattern with less than one interference fringe.

17. (New) An array mount comprising:

a first fixed location from which a recording light is directed upon a grating substrate for fabricating a holographic diffraction grating; and

a second fixed location defined when fabricating the holographic diffraction grating, the second fixed location configured to locate an optical fiber for directing an optical signal upon the holographic diffraction grating for a wavelength diffraction of the optical signal.

18. (New) The array mount of claim 17, wherein the wavelength diffraction

comprises one of a) a wavelength multiplexing, b) a wavelength demultiplexing and c) a wavelength filtering.

19. (New) The array mount of claim 17, wherein the optical signal comprises a plurality of wavelengths and the holographic diffraction grating is operable to demultiplex the plurality of wavelengths.

20. (New) The array mount of claim 17, wherein the first fixed location is alternatively used to direct an alignment light upon the holographic diffraction grating for aligning the second fixed location with reference to the holographic diffraction grating.